Recent Advances in Science in Western Australia

Earth Sciences

The Pilbara coast, as described by V. Semeniuk, is dominated by active deltas, beach/dune shores, inactive eroding deltas and their barriers, limestone barriers and eroded limestone bays, and archipelagos. There are three main suites of Quaternary sediments, Pleistocene red siliciclastic sediments of the inland zone, local Pleistocene limestone barriers, and a Holocene system of deltas, beach/dunes, tidal flats and embayments.

Semeniuk V 1993 The Pilbara coast: a riverine coastal plain in a tropical arid setting, northwestern Australia. Sedimentary Geology 83:235-256.

The vegetation changes, described by J C Newsome of Murdoch University and E J Pickett of The University of Western Australia, for Boggy Lake during the last ca. 4500 years and at Lake McNess during the last ca. 9000 years cannot be attributed with certainty to climatic change. This is despite earlier claims of wetter mid-Holocene climates than at present, and an extensive arid phase in the mid to late Holocene.

Newsome J C & Pickett E J 1993 Palynology and palaeoclimatic implications of two Holocene sequences from southwestern Australia. Palaeography, Palaeoclimatology, Palaeoecology 101:245-261.

An international team of investigators from Curtin University, The University of Western Australia, Dalhousie University, the Geological Survey of WA, and the California Institute of Technology, describe each of the Abroholos platforms as consisting of a central platform of Last Intergalcial reefs, about which windward and leeward Holocene reefs developed asymmetrically. In the Easter Group, windward Holocene reefs are 10 m thick and consist of a slow-growing association of coralline-algal bindstones and coral framestones, whereas leeward Holocene reefs are 26 m thick and dominated by fast-growing coral framestones.

Collins L B, Zhu Z R, Wyrwoll K-H, Hatcher G, Playford P E, Chen J H & Wasserburg G J 1993 Late Quaternary evolution of coral reefs on a cool-water carbonate platform: the Abroholos carbonate platforms, southwest Australia. Marine Geology 110:203-212.

D R Byrne and L B Harris, of the University of Western Australia, review Cu, Pb and Zn vein type deposits in the Northampton Complex, that occupy dilational sites along brittle-ductile shear zones formed during north-south dextral wrenching along the Darling Mobile Zone between 650 and 800 Ma.

Byrne D R & Harris L B 1993 Structural controls on the base-metal vein deposits of the Northampton Complex, Western Australia. Ore Geology Reviews 8:89-115.

Seisimic data of B J Drummond and co-workers of the AGSO, Canberra, and C P Swager of the Geological Survey of WA, indicate that the greenstone belts of the Eastern Goldfields Province are shallow features 6-9 km thick superimposed on an otherwise uniform crust, and are not deep-rooted as is often supposed. The base is planar to subhorizontal, and appears to be block faulted in places.

Drummond B J, Goleby B R, Swager C P & Williams P R 1993 Constraints on Archaean crustal composition and structure provided by deep seismic sounding in the Yilgarn Block. Ore Geology Reviews 8:117-124.

Mineralisation in the Middle Vale Reef at Telfer is described by J P Vearncombe and A P Hill of the University of Western Australia to be coincident with the most deformed rocks in a strata-parallel shear zone in an argillaceous and calcareous horizon. This zone, which was a conduit for fluid during volume loss, reactivated with the addition of quartz-sulphide veins resulting in a net volume gain.

Vearncombe J R & Hill A P 1993 Strain and displacement in the Middle Vale Reef at Telfer, Western Australia. Ore Geology Reviews 8:189-202.

T Cruse, L B Harris and B Rasmussen of the University of Western Australia report the discovery of medusoid-like impressions and other possible biogenic markings of probable Ediacaran affinity in the Stirling Range. This suggests that the Stirling Range Formation was deposited between 590 to 540 Ma, which is less than half as old as previously thought, and folded during a late 'Pan-African' event common throughout adjacent parts of Gondwana but not previously recognised in southwestern Australia.

Cruse T, Harris L B & Rasmussen B 1993 The discovery of Ediacaran trace and body fossils in the Stirling Range Formation, Western Australia: Implications for sedimentation and deformation during the 'Pan-African' orogenic cycle. Australian Journal of Earth Sciences 40:293-296.

Life Sciences

A wide range of aspects of the biology of animals in the marine environment of Rottnest Island, WA, have recently been examined in a two volume series, edited by F E Wells (Western Australian Museum), D I Walker (The University of Western Australia), H Kirkman (CSIRO Marine Laboratories) and R Lethbridge (Murdoch University), that resulted from the Fifth International Marine Biological Workshop held at Rottnest Island in January 1991. Topics covered include the taxonomy and systematics of marine plants, mites, crustaceans, molluscs, echinoderms, and worms; ecology and behaviour; and physiology and functional morphology.

Wells F E, Walker D I, Kirkman H & Lethbridge R 1993 (eds) The Marine Flora and Fauna of Rottnest Island, Western Australia. Vols 1 & 2. Western Australian Museum, Perth.

N A M Verbeek and R Boasson of Simon Fraser University, in an examination of the leaves of rosette, climbering, and upright supporting sympatric *Drosera* sp in southwestern Australia, found that the catch per unit leaf was relatively constant regardless of growth form, but the height above ground of the capturing leaves influenced the terrestrial/aerial nature of invertebrate prey.

Verbeek N A M & Boasson R 1993 Relationship between types of prey captured and growth form in *Drosera* in southwestern Australia. Australian Journal of Ecology 18:203-207.

An assessment by R T Wills of the WA Herbarium for the ecological impact of the fungus *Phytopthora* in the Stirling Range National Park, Western Australia, showed that of the 330 species examined, some individuals of 36% of the species

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had been killed by the fungus and 10% of the species were highly susceptible. Some plant families such as monocotyledons were not susceptible, but others such as Proteaceae were highly susceptible.

Wills R T 1993 The ecological impact of *Phytopthora cinnamomi* in the Stirling Range National Park, Western Australia. Australian Journal of Ecology 17:145-159.

Researchers from the Western Australian Wildlife Research Centre, CALM Woodvale, report from laboratory trials that the western quoll *Dasyurus geoffroii* consumes larger amounts of baits than expected, and discuss the susceptibility of western quolls to poisoned baits used in fox and dingo control. The preferred baiting season for least danger to western quolls is January to March.

Soderquist TR, Serena M 1993 Predicted susceptibility of *Dasyurus geoffroii* to canid baiting programmes: variation due to sex, season and bait type. Wildlife Research 20:287-296.

Recent research on seed germination of southwestern Australian species, which has been reviewed by D T Bell from the University of Western Australia and co-workers from ALCOA of Australia, shows that a range of environmental factors including temperature and light quality influence viability, dormancy and germination. Seeds time their germination to periods of the year and habitat conditions that are most conducive to seedling survival.

Bell DT, Plummer JA & Taylor SK 1993 Seed germination ecology in southwestern Western Australia. Botanical Review 59:25-74.

Bell DT 1993 The effect of light quality on the germination of eight species from sandy habitats in Western Australia. Australian Journal of Botany 41:321-326.

Note from the Hon Editor: This column helps to link the various disciplines and inform others of the broad spectrum of achievements of WA scientists (or others writing about WA).

Contributions to "Recent Advances in Science in Western Australia" are welcome, and may include papers that have caught your attention or that you believe may interest other scientists in Western Australia and abroad. papers in refereed journals, or books, chapters and reviews will be accepted. Abstracts from conference proceedings will not be accepted. Please submit short (2-3 sentences) summaries of recent papers, together with a copy of the title, abstract and authors' names and addresses, to the Honorary Editor (c/o Western Australian Museum) or a member of the Publications Committee: Dr S D Hopper (Life Sciences), Dr A E Cockbain (Earth Sciences), and Assoc. Prof. G Hefter (Physical Sciences). Final choice of articles is at the discretion of the Hon Editor.

"Letters to the Editor" concerning scientific issues of relevance to this journal are also published at the discretion of the Hon Editor. Please submit a word processing disk with letters, and suggest potential reviewers or respondents to your letter.

P C Withers, Hon Editor, Journal of the Royal Society of WA